

CURRICULUM VITAE ET STUDIORUM

Name: Sofia Caretto

Present Position: Researcher at CNR-Istituto di Scienze delle Produzioni Alimentari (ISPA), Lecce; in charge of the Fermentation Laboratory.

Present Field Of Interest: Plant biotechnology for the production of natural molecules of agro-industry interest and investigation on related plant metabolism.

Education: Degree in Biological Science (*summa cum laude*, University of Pisa, 1985)

Professional Experiences:

1986-1990: AIRC research fellow in Genetics at University of Pisa, Italy.

1990-1994: CNR research fellow in Plant Biotechnology at Istituto di Biochimica ed Ecofisiologia Vegetali (IBEV-CNR) in Rome.

1991 (May-December): visiting research assistant in Plant Biotechnology at Department of Agronomy, University of Illinois at Urbana-Champaign, USA.

1994-1997: CNR researcher (temporary ex art.23) at Istituto di Ricerca sulle Biotecnologie Agroalimentari (IRBA), now Lecce UOS of CNR-ISPA.

2002 (April-June): CNR-NATO Senior fellow at Inst. Biologie/Pflanzenphysiologie, Humboldt Universität Berlin (Germany).

2008: CNR *Short term mobility program*. at Centre For Novel Agricultural Products (CNAP), University of York (UK).

Since 1997 permanent position as Researcher at CNR-ISPA Lecce

Teaching and Tutoring Experiences:

Since 2008: Professor in charge for teaching Plant Biology (BIO/01) for the degree in Food Science and Human Nutrition at *Università Campus Bio-Medico* in Rome.

Since 1990 Tutor of several students for the preparation of degree and doctorate theses in plant biology and biotechnology at Università di Lecce, Modena e Reggio Emilia, Parma, Foggia, Campus Bio-Medico Roma. Supervisor of several post-doc research fellows.

Scientific Projects:

2000-2003: Work Package responsible for the project: *Establishment of small and large scale systems using autotrophic and heterotrophic plant cell cultures* (MURST Cluster 05).

2006: Apulia Region explorative project *Advanced techniques for the molecular characterization and quantitative determination of pharmacologically active molecules extracted from Artemisia annua, proposed species for the productive conversion of tobacco-growing fields.*

2007-2008: Apulia Region explorative project *Autoctonous yeasts as fermentation starters for the production of high quality apulian wines.*

2007-2008: COFIN-MIUR *Alterations of ascorbate metabolism in NO-dependent signal transduction.*

2007-2011: Apulia Region strategic project *Molecular characterization and biological activities of pharmacologically active molecules extracted from Artemisia spp, proposed species for the productive conversion of tobacco-growing fields.*

2011-12: PIF Regione Puglia *Innovative strategies for improving wine quality*

2011-12: PIF Regione Puglia *Development of tipicity of extravirgin olive oil from Salento.*

2011-15: MIUR PON 01_ 01445 *Technological development and innovation for the competitiveness and sustainability of southern cereal crops* (ISCOCEM).

Evaluator Expertise:

Since 1990: Referee for the journals: *BMC Biotechnology, Phytochemistry Reviews, Plant and Cell Physiology, Plant Cell Reports, Molecules, Journal of Plant Physiology, Journal of the Science of Food and Agriculture, Scientia Horticulturae, Plant Biosystems, Process Biochemistry.*

2005: Invited member of the Board of Experts of the Committee for Research Evaluation (CIVR) for the first Italian research evaluation exercise (VTR).

2008: Project evaluator for National Agency for the Promotion of Science and Technology, Argentina

Since 2008: Project evaluator for Italian Ministero dell'Università e della Ricerca Scientifica.

Membership To Scientific Societies:

International Association for Plant Biotechnology

Phytochemical Society of Europe,

SIBV (Italian Society of Plant Biology),

SIGA (Italian Society of Agriculture Genetics).

Relevant publications:

Laddomada B., **Caretto S.**, Mita G. Wheat bran phenolic acids: bioavailability and stability in whole wheat-based foods. *Molecules* (2015) 20:15666-15685.

Di Sansebastiano GP., Rizzello F., Durante M., **Caretto S.**, Nisi R., De Paolis A., Faraco M., Montefusco A., Piro G., Mita G. Subcellular compartmentalization in protoplasts from *Artemisia annua* cell cultures: Engineering attempts using a modified SNARE protein. *J Biotechnol* (2015) 202: 146-152.

Laddomada B, Durante M, Minervini F, Garbetta A, Cardinali A, D'Antuono I, **Caretto S**, Blanco A, Mita G. Phytochemical composition and anti-inflammatory activity of extracts from the whole meal flour of Italian durum wheat cultivars. *International Journal of Molecular Sciences* (2015) 16(2): 3512-3527.

Rizzello F., De Paolis A., Durante M., Blando F., Mita G., **Caretto S.**: Enhanced production of bioactive isoprenoid compounds from cell suspension cultures of *Artemisia annua* L. using β -cyclodextrins. *International Journal of Molecular Sciences* (2014) 15:19092-19105.

Durante M., Lenucci M.S., Rescio L., Mita G., **Caretto S.**: Durum wheat by-products as natural sources of valuable nutrients. *Phytochemistry Reviews* (2012) 11:255–262

Durante M., Lenucci M.S., Laddomada B., Mita G., **Caretto S.**: Effects of sodium alginate bead encapsulation on the storage stability of durum wheat (*Triticum durum* Desf.) bran oil extracted by supercritical CO₂. *Journal of Agricultural and Food Chemistry* (2012) 60:10689-10685.

Vurro M., Andolfi A., Boari A., Zonno M.C., **Caretto S.**, Avolio F., Evidente A.: Optimization of the production of herbicidal toxins by the fungus *Ascochyta caulina*. *Biological Control* (2012) 60:192–198.

Durante M., **Caretto S.**, Quarta A., De Paolis A., Nisi R., Mita G. β -Cyclodextrins enhance artemisinin production in *Artemisia annua* suspension cell cultures. *Appl Microbiol Biotechnol* (2011) 90:1905–1913.

Caretto S., Quarta A., , Nisi R., De Paolis A., Blando F., Mita G.: Methyl jasmonate and miconazole differently affect artemisinin production and gene expression in *Artemisia annua* suspension cultures. *Plant Biology* (2011) 13:51-58.

- Nisi R., Paradiso A., De Gara L., D'Amico L., **Caretto S.**: Cultivation of *Arabidopsis* cell cultures in a stirred bioreactor at variable oxygen levels: influence on tocopherol production. *Plant Biosystems* (2010) 144: 721-724.
- Caretto S.**, Nisi R., Paradiso A., De Gara L.: Tocopherol production in plant cell cultures. *Molecular Nutrition and Food Research* (2010) 54: 726-730.
- Caretto S.**, Serio F., Parente A., Santamaria P.: Influence of potassium and genotype on vitamin E content and reducing sugar of tomato fruits. *HortScience* 43(7)(2008) 2048-2051.
- Fachechi C., Nisi R., Gala R., Leone A., **Caretto S.**: Tocopherol biosynthesis is enhanced in photomixotrophic sunflower cell cultures. *Plant Cell Reports* 26 (2007) 525–530.
- Gala R., Mita G., **Caretto S.**: Improving α -tocopherol production in plant cell cultures. *Journal of Plant Physiology* 162(7) (2005) 782-784.
- Serio F., De Gara L., **Caretto S.**, Leo L., Santamaria P.: Influence of an increased NaCl concentration on yield and quality of cherry tomato grown in posidonia (*Posidonia oceanica* (L.) Delile) *Journal of the Science of Food and Agriculture* (2004) 84:1885-1890.
- Caretto S.**, Bray Speth E., Fachechi C., Gala R., Zacheo G., Giovinazzo G.: Enhancement of vitamin E production in sunflower cell cultures. *Plant Cell Reports* (2004) 23:174-179.
- Caretto S.**, Paradiso A., D'Amico L., De Gara L.: Ascorbate and glutathione levels in two sunflower cell lines of differing alpha-tocopherol biosynthetic capability. *Plant Physiology and Biochemistry* (2002) 40 (6-8) 509-513.
- Caretto S.**, Giardina M.C., Macagnano A., Bray E., Nicolodi C. and Mariotti D.: Biochemical evidence for two forms of acetohydroxyacid synthase in *Daucus carota* L. cell lines selected for chlorsulfuron resistance. *Pesticide Biochemistry and Physiology* 64(1999) 76-84.
- Murata M., Ryu J.H., **Caretto S.**, Rao D., Song H.S., and Widholm J.M.: Stability and culture medium limitations of gene amplification in glyphosate resistant carrot cell lines. *Journal of Plant Physiology* 152 (1998) 112-117.
- Frugis G., **Caretto S.**, Santini L. and Mariotti D.: A. rhizogenes rol genes induce productivity-related phenotypical modifications in "creeping-rooted" alfalfa types. *Plant Cell Reports* 14 (1995) 488-492.
- Caretto S.**, M. C. Giardina, C. Nicolodi and D. Mariotti: Acetohydroxyacid synthase gene amplification induces chlorsulfuron resistance in *Daucus carota* L. In: M. Terzi, R. Cella and A. Falavigna Eds, *Current Issues in Plant Molecular and Cellular Biology*, Kluwer Acad. Publ.(1995) pp. 235-240.
- Caretto S.**, M. C. Giardina, C. Nicolodi and D. Mariotti: Chlorsulfuron resistance in *Daucus carota* cell lines and plants: involvement of gene amplification. *Theoretical and Applied Genetics* 88 (1994) 520-524.
- Caretto S.**, M. C. Giardina, C. Nicolodi and D. Mariotti: In vitro cell selection: production and characterization of tobacco cell lines and plants resistant to the herbicide chlorsulfuron. *Journal of Genetics and Breeding* 47 (1993) 115-120.
- Shyr Y.J., **Caretto S.** and J.M. Widholm: Characterization of the glyphosate selection of carrot suspension cultures resulting in gene amplification. *Plant Science* 88 (1993) 219-228.
- Fontana G.S., L. Santini, **Caretto S.**, G. Frugis and D. Mariotti: Genetic transformation in the grain legume *Cicer arietinum* (chickpea). *Plant Cell Reports* 12 (1993) 194-198.
- Sbrana I., **Caretto S.**, G. Rainaldi e N. Loprieno: Induction of chromosomal aberrations and SCE by chloramphenicol. *Mutation Research* 248 (1991) 145-153.
- Sbrana I., **Caretto S.**, D. Lascialfari, G. Rossi, M. Marchi and N. Loprieno: Chromosomal monitoring of chromium exposed workers. *Mutation Research* 242 (1990) 305-312.